Arduino Powered Brain Machine

Written By: William Anderson

TOOLS:

- 3/16" Drill Bit (1)
- Android phone or Ipod running the app called "Brain Booster" (optional) (1)
- Color printer (1)
- Computer running the arduino IDE (1)
- Drill (1)
- Extension cable, USB A/B (1)
- Hot Glue gun & hot glue (1)
- Marker (1)
- Scissors (1)
- Soldering Iron and rosin core solder. (1)
- Wire cutter/stripper (1)

PARTS:

- Safety glasses (1)
- 9V battery (1)
- Arduino microcontroller (1)
- 5mm Red LEDs (2)
- Wire, hookup, 22 gauge stranded (1)
- 9v battery snap to arduino connecter (1)
- Tape (1)
- Zip tie (1)
- 9v battery snap (optional) (1)
  (solder this in-between a AC/DC connector if you don't have a 9v battery snap to arduino connector ((available in the makershed)))
- Headphones, 1/8" plug, mono or stereo (optional; if you're using the brain booster) (1)
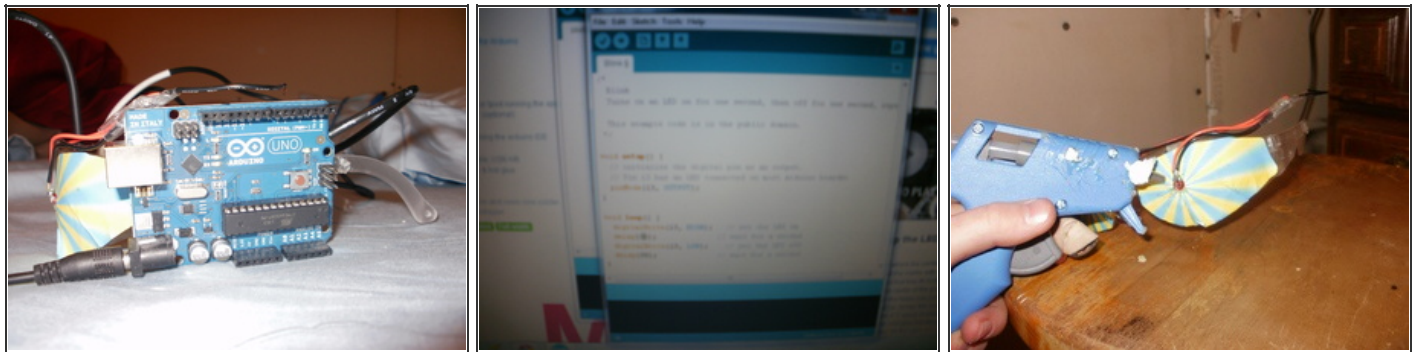
SUMMARY

It is basically an Arduino and LEDs that have been mounted on a pair of safety glasses. It runs a code that you can modify so that you get a strobe that is in front of your eyes. When you put them on, they help you see crazy patterns and things, and when you take them off, you feel wonderful (except for people that are sensitive to strobe lights).
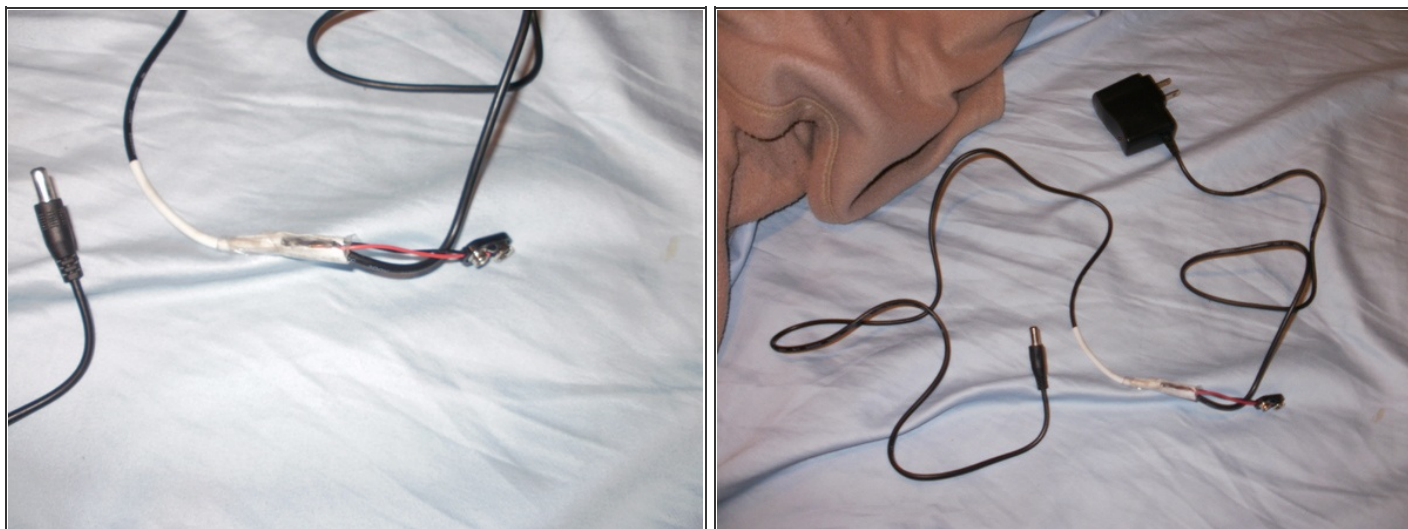
Step 1 — Solder up the LEDs

● Put on the glasses. Mark where the center of your eye is on the glasses. Drill out the marks with a 3/16" drill bit. Cut out the graphics so that they fit on the glasses. Burn a hole in the center of the graphics. Push in the LEDs through the holes you just made. Solder two 5" wires to the LEDs. Solder the black to black and red to red. Solder two 1" wires in between the connections you just made. Hot-glue everything in place. Hot-glue the 9V battery on the right arm of the glasses.

Step 2 — Mount and Program the Arduino

- Use a tiny dab of hot glue to glue the Arduino to the left arm of the glasses. Use a zip tie to make it tight. Plug the black/negative wire from the LEDs into ground. Plug the red/positive wire from the LEDs to pin 13. Plug the Arduino into your computer using the USB cable. Open the IDE. Load the Blink example sketch by going into File> Examples>1.Basics>Blink. Change each of the 1000 millisecond delays to 50 milliseconds.(aka change the "1000"s to "50"s) Click Upload. The LEDs should start flickering.

Step 3 — Use it

- Plug the 9v battery on the right side to the Arduino on the left side using a connector. The connector is a wall adapter to Arduino plug adapter. Split a 9v battery connector in between the wires. (If you have an Arduino connector to 9v battery connector, than use that instead.) Plug the 9v connector end into the 9v battery. Plug the other end into the plug on the Arduino. Put on the glasses. Relax... Think about patterns... Use the headphones plugged into the phone or mp3. Set the volume on Med-Low volume.

- Do not use for more than 3 minutes. This is not for people that are photosensitive to flashing lights.

Step 4 — Resources

- Go to http://makezine.com/10/brainwave for more information and the graphics. Buy real Brain Machine kits at the Makershed. Happy Making!

This document was last generated on 2012-10-31 10:31:03 AM.